

ABSTRACTS.*

PSYCHOLOGY SECTION.

Suggestibility as Influenced by the Form of the Question.—By HAROLD E. BURTT, Ohio State University.

Moving picture news reels were presented and subjects questioned immediately. Six forms of question were used over 5000 times each as follows:

(a) Did you see a.....; (b) Did you see the.....; (c) Didn't you see a.....; (d) Didn't you see the.....; (w) Was there a.....; (x) Wasn't there a.....

The erroneous admission of the presence of an object was construed to reflect suggestibility in the form of the question. Three aspects were analyzed, the nature of the article, the negative vs. positive form, and the subjective vs. objective form. Results regarding the first of these were equivocal. There is a somewhat statistically significant trend for the negative to carry greater suggestion than the positive form although there seems one clear exception to this trend. With regard to the subjective and objective forms the latter shows clearly a higher degree of suggestibility.

An Experiment on the Relative Effectiveness of the Lecture-quiz and the Recitation Methods of Class Instruction in Elementary Psychology.—By H. H. REMMERS, Purdue University.

The object of this experiment was to determine the relative achievement of students under two different methods of instruction in Elementary Psychology: the lecture-quiz method and the recitation method. The lecture-quiz group containing approximately 150 students met twice a week for lecture and once a week in groups of 35 to 40 for discussion and quiz. Ninety-seven students in the lecture-quiz group were matched with 97 students in other classes meeting three times a week in groups of 35 to 40 on the basis of 4 criteria—sex, school of enrollment in the University, and the average percentile score on the Iowa Chemistry Aptitude Test, Iowa Mathematics Training Test, Purdue University English Placement Test, and National Council Psychological Examination. Achievement was measured in terms of objectively scored tests, daily written work, and an essay type of examination. Students' attitudes toward instructors and the method of instruction were also obtained. The major finding of the experiment is that the larger group under the lecture-quiz method did slightly

*The Abstracts for the Section of Psychology were not received by the Secretary until the July number of the Journal containing the Proceedings of the Academy had been printed and was nearly ready for mailing.

but not statistically significantly better on the average than did the smaller recitation classes—this notwithstanding the fact that student attitude rather emphatically favored the less formal recitation method.

The Anticipation of Correct Responses as a Source of Error in Learning Serial Responses.—By FREDERICK HILLIS LUMLEY, Ohio State University.

Forty subjects learned three maze patterns on a typewriter multiple choice maze. These maze patterns consisted of two series of twenty letters and one series of forty letters. Analysis of the types of errors showed that the subject anticipated responses which would have been correct further on in the series. The frequency of the anticipation errors was inversely proportional to the degree of anticipation. Thus responses, which would be correct in the near future, were anticipated more often than responses which would be correct in the distant future. As learning progressed the ratio of the near anticipations to the far anticipations increased. Analysis of the published data of other investigators shows this factor of anticipation.

The Effect of Emotional Stimuli on the Activity Level of the White Rat.—By JAMES R. PATRICK.

Two groups of fed rats, one rat at a time from each group, were put into an "activity maze" for a period of two minutes each. One group of ten rats constituted the control. The second group (10 rats) was the experimental group. The activity of the control group was recorded under normal conditions. But the experimental group was subjected to emotional stimuli during the full two minute period they were in the maze. The results show that spontaneous overt activity, under the present conditions, is inhibited when rats are not operating under a drive but are confronted with emotional stimuli as is afforded by the sounding of buzzers. The control group, without the influence of emotional stimuli, showed 27 per cent increase in activity over the experimental group. Results from experiments reported in the literature seem to show that when the rat is operating under a drive, as in a learning situation, and when he encounters emotional stimuli that excess amount of behavior is shown. The present research, along with the others reported, indicates that the behavior level of the white rat is influenced by both "internal" and "incidental external" sources of stimulation while the rat is in the maze.

A Comparison of the High Relief Finger Maze and An Improved Form of the Stylus Maze.—By T. C. SCOTT AND B. B. NELSON, Ohio University.

The object of this investigation was to make a comparison between the high-relief finger maze and an improved form of a stylus maze. This stylus maze was so constructed that retracing was prevented. The stylus was also of such a nature that it fit snugly and the subject could not wander around in the groove or have the feeling of being lost.

One hundred subjects learned a stylus and a wire maze of identical pattern and size. Group 1 of 50 subjects learned the stylus maze the

first day and the wire maze the second day. Group 2 of 50 subjects learned the wire maze the first day and the groove maze the second day. In both cases the subjects were not told that the patterns were the same. Group 1 required a few more trials and errors, but less actual running time, to learn the stylus maze the first day than Group 2 did to learn the wire maze. These differences, however, were highly unreliable, particularly in the case of trials and errors, the obtained difference between the means being less than the standard error of difference. The results the second day offered further evidence of this unreliability. About the same number from each group recognized the pattern the second day.

The relative difficulty of the respective alleys of the two mazes indicates that they are measuring the learning function in the same way. The correlation computed in terms of the total number of errors made on the respective alleys in the two mazes is .976.

The reliability coefficients were computed for the two mazes in terms of errors on the first ten trials and show the stylus maze to be somewhat superior to the finger maze for learning experiments.

Twenty-four subjects in each group of 50 were boys, giving sex groups of 48 boys and 52 girls. These two groups offer differences in favor of the boys which are more reliable than those existing between the two maze groups.

*An Objective Study of Student and Faculty Attitudes Toward Academic Honesty.*¹—By C. O. MATHEWS, Ohio Wesleyan University.

It was the purpose of this study to discover the nature and variations of attitudes toward academic honesty among students and faculty members of a certain institution where an honor system had been functioning for about twenty-five years. As a means of tapping attitudes an objective blank containing thirty-six descriptions of honesty situations and one item concerning the reporting of observed dishonesty was constructed.

Responses from 494 representative college students show that there is an extremely wide variation in respect to the kinds of academic conduct that they can justify. There was not one situation of the thirty-six but that was justified by at least four per cent of these students. Only one item was unanimously agreed upon by the faculty.

The juniors and seniors ranked below the freshmen and sophomores in respect to their sense of academic honesty. Women exceeded men in all classes in this respect. There was a very wide gap between the opinions of the students and faculty. Both seemed to be more lenient in their attitude toward dishonesty in preparing assignments than in taking examinations.

In respect to reporting observed dishonesty only one-third of the students and two-thirds of the faculty justified it. Women were more favorable to reporting than men; seniors less favorable to it than the

¹This is a portion of a faculty report on the honor system at Ohio Wesleyan University. The members of the committee were Professors Diem, Lewis, Manchester, Murray and Mathews (chairman).

other classes; and those with the most favorable attitudes toward honesty were most favorable to reporting dishonesty.

When honest opinions vary as widely as the ones expressed by these persons, and when rationalizations to justify most any action are so easy to construct, is it any wonder that honor systems seem ineffective and that the problem of academic honesty is always at hand?

Rating Scales in Industry.—By RICHARD STEPHEN UHRBROCK, Industrial Relations Division, The Procter and Gamble Company, Cincinnati, Ohio.

Four types of rating scales are most widely used in validating psychological and educational tests in industrial situations.

1. *Order of Merit:* Lists of names of persons to be rated are prepared and presented to judges. The judges are asked to rank the men from best to poorest, and to indicate their ratings by numbering the names.

2. *Man-to-Man:* Traits are defined. A master rating scale is prepared by each judge, who lists the names of persons known to him who possess, in varying degrees, the qualities to be rated. New men are compared with the well-known individuals whose names appear on the master scale. Numerical values are assigned to points on the scale.

3. *Graphic Rating Scale:* Traits considered essential for success on a given job are defined. Degrees of the traits are indicated by means of descriptive phrases. Judges are asked to check the items that most clearly describe the behavior, or attributes, of the man being rated. Each step on the scale is given a numerical value.

4. *Paired Comparison:* The name of each man to be rated is paired with the name of every other man in the group under consideration. Judges are asked to check the name of the better man in each pair.

With ratings upon each man in a group, obtained by means of one or more methods, it becomes possible to rank the members of the entire group under consideration, and to isolate the best third, and the poorest third, for detailed study.

Scientists and Church Membership.—By HARVEY C. LEHMAN AND PAUL A. WITTY, Ohio University and Northwestern University.

In this paper tables are presented which set forth the percentages of individuals from several branches who stated their church affiliations when writing their autobiographical sketches for *Who's Who in America*. Some interesting age differences are presented also.

The names of the most outstanding scientists in the United States were obtained from the 1927 edition of *American Men of Science*, the biographical directory edited by Cattell. Data regarding church membership were obtained from the 1926-1927 edition of *Who's Who in America*.

It is possible that these data indicate also the relative seriousness with which various types of scientists take their church membership. If the latter conclusion be valid it is clear that the physicists consider church membership most seriously; the physiologists, the psychologists, and the anatomists, less seriously, and that older scientists look upon religious denominations less seriously than do younger ones.

The more plausible explanations (from the authors' points of view) are also presented.

The Mental Status of Reformatory Women.—By C. H. GROWDON, Ohio Bureau of Juvenile Research.

This study reports the results of a mental survey covering a five-year period beginning July 1st, 1925. The total number of prisoners examined during this time was 2185, of whom 70 were discarded because of unsurmountable language difficulties. Of the number examined 1312 were white adult women, of whom 432 were felons, and 880 misdemeanants. The negro population was 803, of whom 226 were felons, and 577 were misdemeanants.

The method of examination was that of group tests of three varieties, namely, general intelligence tests (Army Alpha, or Morgan's Mental Test), performance tests (Pintner Non-language Tests) and literacy tests (Ohio Literacy). These were supplemented by interviews and individual tests whenever there was good reason to doubt the accuracy of the ratings obtained by group examination. After each prisoner had been given the battery of three group tests the mental ages thus obtained were combined into a single mental age rating by a process of weighting which gave the general intelligence test a weight of two points, the literacy and performance tests a weight of one each in a scale of four.

The mental ages of the prisoners were then grouped together into frequency tables showing the distribution according to race, and crime committed. These distributions were then compared with the mental age norms established for the general population of each race by the army psychologists during the World War. (There are no comprehensive mental age norms for the general female population. We assume that they would parallel those for men had they been established.)

In addition to the comparison on the basis of mental age distributions a more direct estimate of the relationship between imprisonment and mental level was obtained by calculating a "prison ratio" for each mental age, and for each variety of crime. This ratio is obtained by dividing the percent of frequency of any given mental age as found in the population at large, by the percent of frequency found among prisoners at the same mental age. The results are presented in a series of tables and curves.

The main conclusions reached are as follows:

1. On the basis of median mental ages, white female prisoners rated approximately 2.0 years lower than the general white population. White felons gave a median mental age of 11.26 years, white misdemeanants gave a median of 10.02 years.
2. On the same basis negro prisoners rated 1.45 years lower than the general negro population. Negro felons gave a median mental age of 8.65 years, negro misdemeanants gave exactly the same median.
3. On the basis of smoothed percentile curves, the median mental ages rate the prisoners convicted of various crimes thus in decreasing order of mentality:

White prisoners: Forgery and embezzlement, grand larceny, petit larceny, murder, burglary, sex offenses other than prostitution, robbery, prostitution, contributing to delinquency and dependency, violation of the liquor laws, and various types of assault.

Negro prisoners: Forgery and embezzlement, petit larceny, prostitution, grand larceny, contributing to delinquency and dependency, murder, violation

of the liquor laws, various types of assault, robbery, sex offenses other than prostitution, and burglary.

4. The prison ratios show that, for both races, the mental ages from six to ten years send in a relatively high excess of prisoners, that fewer than the expected number come from the mental levels of eleven to fourteen years, and that at fifteen and sixteen years there is a tendency to increase beyond the ratios set by the mental ages of eleven to fourteen. In the case of white prisoners below the mental age of ten years the prison ratios vary from 1.76 to 9.00 times as many in prison as in the general population. In the case of negroes the prison ratios at these same ages seldom exceed 1.5 times the rate in the general negro population.

5. On the basis of prison ratios it appears that mentality is a much greater factor in the conviction of white female delinquents than in the case of negroes, and that persons of average intelligence are less liable to conviction than those higher or lower than average.

Some Recent Findings in the Part and Whole Methods of Learning.—
By C. C. WOOD.

The investigation from which the following report is taken was prompted by the old quarrel which started more than thirty years ago and which still rages. Steffen, Pyle, Snyder, Freeman, Dolan, Pechstein, Reed, Brown and others have all made substantial contributions.

Most of the investigators named above have found the whole method superior to the pure part method or to any of the modified part methods. Pechstein and Reed are two of the outstanding supporters of the part method of learning. In the light of these investigations the writer set out about three years ago to satisfy, as far as possible, his desire for first hand information concerning this matter of learning.

Ten University students, five men of graduate rank and five undergraduate women, served as subjects. The material for learning consisted of fifteen series of nonsense syllables, twenty-four syllables to the series.

Five methods were used, the pure part, the whole, the progressive part, the direct repetitive and the reverse repetitive. The methods were so rotated that the effects of practice were duly equated, taking care of the transfer effect of each subject's first learning upon the following series.

THE EFFECTS OF PRACTICE ON THE RELATIVE EFFICIENCY
OF WHOLE AND PART METHODS.

Our primary interest just now is in the effects of practice on the relative efficiency of the various methods.

There are several problems involved in the general effects of practice. They are (1) Individual differences (2) the effects of choice of criterion (3) the factors conditioning improvement. We wish to answer three questions which may be stated here; they are:

(1) Does practice accentuate or minimize the difference of methods?

(2) What are the relative amounts of change in the efficiency of the various methods?

(3) To what extent is there correlation between the values of the methods?

In answer to the first question our data indicates that practice minimizes differences, in many instances bringing them almost to the vanishing point. For example the difference in trials between the

best and poorest methods, in group I, decreased, from the first to third round, 60.5 per cent, for group II, the decrease was 17.6 per cent between the first and second rounds.

In errors, these decrease in differences were respectively, 65.8 per cent and 34 per cent.

In time, these decreases in differences were, respectively, 91 per cent and 30 per cent.

In answer to the second question our data shows that in every instance the method that was least effective in the beginning showed the greatest improvement and in every instance save one, the method that was most effective in the beginning showed the least improvement.

In the matter of question three, our data shows that correlation became less perfect as practice proceeded.

After the first round, the three criteria give results which were decidedly out of agreement.

Measured by all criteria the effectiveness of the methods ranks as follows:

- | | |
|-------------------------|---------------|
| 1. Direct Repetitive. | 4. Pure part. |
| 2. Progressive part. | 5. Whole. |
| 3. Reversed Repetitive. | |

In finality the writer wishes to say that the limits of improvement were not reached for any method in this investigation.

How long improvement can continue or just what the limits of improbability are, is a matter of individual capacity. Until the limit of efficiency is reached, improvement is possible. The writer believes that the feeling of necessity has goaded the subjects into a more intensive effort to excel by the whole method procedure than by the part methods. It is therefore possible that the whole method is as near or nearer the limit of efficiency as any of the part methods.

Collection of "Progress" Indices for Ohio Counties.—By C. W. HALL.

In an effort to obtain a measure of the economic, social, educational and health status of each Ohio county, data concerning 157 variables have been collected. These data have been converted into indices. A few of these indices are: percentage of farms located on hard surface roads, tuberculosis death rate, birth rate, percentage of homes having telephones, per capita wealth, per capita sale of Red Cross stamps, average intelligence of high school seniors and the average experience of teachers. From this large group of indices, the best indices for predicting school success will be selected. The variables thus selected will be combined into an index which will be used to secure a socio-economic rating for each Ohio county.

The paper points out many difficulties encountered in using the statistics collected by the several state departments. The most serious errors are introduced by (1) the arbitrary determination of community limits in terms of political units (2) the impossibility of using the same units for all variables (3) the registration in one community of statistics that actually pertain to another community, and (4) the lack of adequate checks. These difficulties seriously impair the usefulness of much of the data gathered by the state. It is suggested

that this situation could be remedied, at least in part, by the appointment of a state director of statistics charged with the improving of techniques and coordinating the work of various state statistical divisions.

The Effect of Hypnosis on Long Delayed Recall.—By JOHN M. STALNAKER, Purdue University.

Twelve subjects in recalling 92 selections of prose or poetry learned a year or more before, were able to reproduce on the average 67 per cent more in the trance than in the waking state. A practice effect of 14 per cent increase of the second condition over the first was found, although a counterbalanced order prevented this from influencing the final results. The subjects were found to improvise the poetry where their literal memory proved inadequate, to a greater extent in the trance state.

The Effect of Rhythm and Reverie on the Machine Worker.—By STANLEY B. MATHEWSON.

This paper discusses what the machine is doing for the human—doing for him emotionally, not economically.

Machine workers whose jobs permit the establishment of rhythmical bodily motions soon experience a "mind freedom" which permits protracted reveries. Such reveries are often pleasurable mental excursions which leave the worker in an emotionally quiescent state. The triple combination of (a) response to measured cadence, (b) day dreaming, and (c) earning one's living, accounts for great masses of human beings remaining contented year after year at work which requires only muscular attention. Bodily response to rhythm, and mental tendency to day dream, are among the oldest habits of man. When a human being engages in age-old customs, a sense of satisfaction usually accompanies such acts.

Machine made reveries may consist of nothing more than idle and fanciful musings or even morbid worries. On the other hand, they may be meditations of great merit. Samuel Gompers and Michael Pupin are examples of men who planned great things while they were still uneducated routine workers and later in life made imperishable contributions in their respective fields. Each in his autobiography clearly traces such deeds to the "mind freedom" permitted by certain work in their early lives. A number of other cases of reveries on the job are cited, among them being the experiences of the investigator himself while a conveyor worker at the Ford Motor Company plant.

The paper concludes with the suggestion of further research into the possibility of directing the mind habits of rhythmical workers into more generally constructive channels.

The Check-list as an Instrument to Determine Personality Changes in Pre-school Children.—By W. G. PIERSEL, Marietta College.

The check-list used was devised by Dr. Elizabeth Moore of the Iowa Child Welfare Research Station, State University of Iowa. The activities, briefly stated, are these:

1. Shows alert curiosity.
2. Tries to mold environment to his purpose.
3. Finds interesting occupation.
4. Creates or constructs.
5. Plans definitely.
6. Exerts efforts at continued difficulty.
7. Gives sustained attention.
8. Faces issues frankly.
9. Rises to meet occasion.
10. Shows stability at changes in environment.
11. Speaks with cheerful, well-placed voice.
12. Shows self-control when mentally or physically hurt.
13. Shows composure at interference from others.
14. Sees humorous aspect of situation.
15. Shows ability to care for own needs.
16. Speaks and acts with directness and effectiveness.
17. Welcomes and uses help and advice.
18. Adjusts to social needs or order.
19. Shows kindness to others.
20. Shows healthy direction of affections.
21. Respects the rights of others.
22. Converses with others.
23. Shows sensitiveness to approbation.
24. Seeks companionship, responds to friendly advances.
25. Enters into cultural experiences.

Taking Phyllis as an example, six observations of fifty minutes each were made, and after checking, were divided into two equal parts, the first three coming early in the period, and the last three much later. A comparison of the scores in the two periods indicates certain positive changes in personality, such as increasing stability at changes in environment, more definite planning, giving sustained attention, and more seeing of the humorous aspect of things. A large increase in disobedience to adult requests is noted, which tends with the other changes to show increased capacity for self-direction. With added familiarity to the pre-school situation, she talks much more, expressing more ideas, and shows less tendency to seek the companionship of others.

Some Comments on the Interrelations of Intelligence Test Score, Stated Intention of going to College and Occupational Choice of High School Seniors.—By HAROLD A. EDGERTON, Ohio State University.

The data presented are from the study of over 30,000 Ohio High School seniors in the autumn of 1930. The following may be briefly noted:

1. There is some relation between an intelligence test score (Form 17, Ohio State University Psychological Examination) and stated intention of going to college.
2. There is too little differentiation between low scoring and high scoring pupils as regards intention of college attendance.
3. There is some relationship between the occupation which the pupil expects to enter and his test score. Such occupations as author, chemist, lawyer, physician, are chosen mainly by high scoring pupils; and occupations such as farmer, beauty parlor operator, machinist, carpenter are chosen by those of lower test score.

4. The data give some notion of the sort of intellectual competition the pupil will have to meet in entering the various occupations.

5. Most of the girls who have expressed an occupational preference, wish to enter one of three occupations: teaching—precollege (1851), nursing (1751), and stenography (2485).

6. The data, which have so far been studied, indicate that much time in high school should be spent in the guidance of:

- (a) Girls generally.
- (b) Boys and girls whose parents are not professional people.
- (c) Girls who have decided to go into elementary or secondary teaching, stenography or nursing.
- (d) Boys and girls who have not yet decided regarding college, particularly the brilliant and scholarly.
- (e) Brilliant and scholarly boys and girls who have decided against college attendance on financial grounds.

PHYSICAL SCIENCES SECTION.

The Lecture-Demonstration and Individual Laboratory Methods of Introducing College Students to First Year Chemistry.—By C. C. ROSS, University of Kentucky, and V. F. PAYNE, Transylvania College.

The study here reported involving twelve sections of first year college chemistry students in four institutions has not produced uniformly significant results. The writers have concluded, however, on the basis of several methods of comparison, the number of students used and the number of colleges and instructors involved, that these students made better progress, as that progress is commonly measured, when introduced to the study of college chemistry by the lecture-demonstration method. Likewise they have concluded that the students of lesser ability profited relatively more by the introduction through lecture-demonstration than did the students of greater ability. Also there were indications that later work by the individual laboratory method is strengthened by the lecture-demonstration introduction.